

Notice of Allowability

Application No.

10/043,981

Examiner

David Silver

Applicant(s)

WASYNCZUK ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Granted revival petition and accompanying RCE for consideration of amendment of Oct 24, 06.

2. ☒ The allowed claim(s) is/are 8-10 and 15.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 3/5/2007

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.


KAMINI SHAH
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

1. The Instant Office Action is in response to a granted petition for revival of Application and an accompanying Request for Continued Examination filed July 26, 2007 requesting consideration of amendment filed on October 24, 2006.
2. Claims 8-10 and 15 are pending in the Instant Application.

Priority

3. Upon examination, priority is not granted. Specifically, the provisional Application does not disclose fully the claimed subject matter. Further, the references cited within the Provisional Application 60/261,033 have **not been submitted to the Office for consideration**. See pages 12-13 of Provisional Application, references 1-16.

Information Disclosure Statement / Duty to Disclose

4. In Advisory Action dated 11/16/2006 Applicants were made aware that a number of references listed in an international search report have not been provided to the Office. An IDS has been filed (dated 3/05/2007) having the said references. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered if signed and initialed by the Examiner.
5. In Advisory Action dated 11/16/2006 Applicants were made aware and were requested to provide Applicants' own Dissertation titled "A state selection algorithm for the automated state model generator", authored by Juri Jatskevich, dated 1999. It was indicated that the Dissertation appeared to be material to the patentability of the Instant Application.

In response Applicants' Attorney provided an Affidavit (dated 3/05/07) stating that he had reviewed that the 24-pages of the thesis. The Affidavit also refers to a statement within the Dissertation: "This thesis is to be regarded as confidential". Although this statement is in the Dissertation, it was nevertheless published. As readily apparent, this statement has no bearing on the public availability of the Dissertation. Moreover, Applicants have not stated in the affidavit that the thesis was not

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publicly available. Regardless, the issue is moot in view of the statements presented in the Allowable Subject Matter below.

The Affidavit also indicated that Exhibit A showed a response from ProQuest (publisher of the 24-page preview of the Dissertation) stating that the "publication process" was completed November 1, 2001. This is rendered moot because the Dissertation is mentioned in the BACKGROUND section of the Instant Application's Specification and is once again dated as being published in 1999 by Perdue University. See PG PUB paragraph [0009].

Additionally, the Dissertation subject was most likely based, at least in part, on references and other sources of information enumerated in the Dissertation, which may also be material to the patentability of the Instant Application. Because the Applicants have not provided the Dissertation it is unknown whether the references have been considered by the Office during the course of the prosecution. It is noted that Applicants have provided two IDS forms, one dated 4/15/2002 and a second IDS form dated 3/05/2007. Both of the IDS forms contained only U.S. Patent documents, and had not included non-patent literature documents.

6. Applicants have not provided the Dissertation and the references relied thereupon as requested in Advisory Action dated 11/16/2006.
7. Full faith and credit is extended to the Applicants that they have complied with their duty to disclose. See 37 CFR 1.56, MPEP 2001.04.

Allowable Subject Matter

8. Claims 8-10 and 15 allowed.

8.1 As per claim 8-10, the instant claim is directed to a non-obvious improvement over the computer application as implemented in TINA Pro.

The most relevant prior-art of record is TINA Pro that discloses the claim as follows (**particularly note the emphasizing portion**):

It discloses the calculation of inductive branches, capacitive brunches and resistance branches.

However, the prior art does not explicitly disclose or suggest: creating one or more data structures that together store characteristics of a plurality of active branches B^{active} that make up a graph of nodes and branches that form a circuit, wherein B^{active} consists of a set B_L of zero or more inductive branches, each having a non-zero inductive component but neither a capacitive component nor a variable switch state; a set B^C of zero or more capacitive branches, each having a non-zero capacitive component but neither an inductive component nor a variable switch state; and a set B^A of additional branches, each having neither an inductive component, nor a capacitive component; partitioning B^{active} into a first branch set $B.\text{sub.tree.sup.active}$ and a second branch set $B.\text{sub.link.sup.active}$, where the branches in $B.\text{sub.tree.sup.active}$ form a spanning tree over B^{active} , giving priority in said partitioning to branches not in B^L over branches in $B.\text{sup.L}$; sub-partitioning $B.\text{sub.link.sup.active}$ into a third branch set $B.\text{sub.link.sup.L}$ and a fourth branch set $B.\text{sub.link.sup.CA}$, where $B.\text{sub.link.sup.L} = B.\text{sub.link.sup.active}.\text{andgate}.B.\text{sup.L}$; identifying a fifth branch set $B.\text{sup.CA}$ as the union of $B.\text{sub.link.sup.CA}$, $B.\text{sup.C}.\text{andgate}.B.\text{sub.tree.sup.active}$, and those branches in $B.\text{sub.tree.sup.active}$ that form a closed graph when combined with $B.\text{sub.link.sup.CA}$; partitioning $B.\text{sup.CA}$ into a sixth branch set $\{\text{tilde over (B)}\}.\text{sub.tree.sup.CA}$ and a seventh branch set $\{\text{tilde over (B)}\}.\text{sub.link.sup.CA}$, where the branches in $\{\text{tilde over (B)}\}.\text{sub.tree.sup.CA}$ form a spanning tree over B^{CA} , giving priority in said partitioning to branches in B^C over branches not in B^C ; identifying an eighth branch set $B.\text{sub.tree.sup.C} = \{\text{tilde over (B)}\}.\text{sub.tree.sup.CA}.\text{andgate}.B.\text{sup.C}$; selecting a set of state variables comprising: for each branch of $B.\text{sub.link.sup.L}$, either the inductor current or inductor flux, and for each branch of $B.\text{sub.tree.sup.C}$, either the capacitor voltage or capacitor charge; and simulating a plurality of states of the circuit using the set of state variables.

8.2 As per claim 15, the instant claim is directed to a non-obvious improvement over the computer application as implemented in TINA Pro.

The most relevant prior-art of record is TINA Pro in view of further in view of MathWorks

(<http://web.archive.org/web/20010309234347/http://web.ccr.jussieu.fr/ccr/Documentation/Calcul/matlab5v11/docs/00000/0007e.htm>, 1997) that discloses the claim as follows:

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TINA Pro discloses a processor and a computer-readable medium in communication with said processor **(Frontpage)**,

said medium containing programming instructions executable by said processor to:

build state equations for a first topology of an electronic circuit having at least two switching elements, wherein each switching element has a switching state **(ECTINA time controlled switch)**

solve said state equations at time t_i to provide a state output vector, in which at least two elements control the switching states of the switching elements **(CSTINA: The image shows an output vector (graph) as a time t_i , displayed on the x-axis);**

calculate the value of a switching variable as a function of the state output vector, wherein the value reflects whether the switching state of at least one of the switching elements is changing **(ECTINA: Flip-flop);**

and if the value of the switching variable at time t_i indicates that at least one of the switching elements is changing, determine a second topology of the electronic circuit for time t_i^+ and obtain state equations for the second topology **(ECTINA: Other components: time controlled switch).**

MathWorks teaches of an exemplary analogous simulation system using such ODE solvers, as stated on page "SIMULINK 2; Simulation Engine" section "New ODE Solvers".

However, TINA Pro and MathWorks do not individually or in combination, teach, suggest, or render obvious that at a time $t_{sub,j}$, at least two switching elements are each either rising-sensitive or falling-sensitive switches, wherein rising-sensitive switches change switching state if and only if a controlling element of the state vector has passed from a negative value to a non-negative value; and falling-sensitive switches change switching state if and only if a controlling element of the state vector has passed from a positive value to a non-positive value; and the function is the arithmetic maximum of a maximum of all elements of the state vector that control rising-sensitive switches, and the negative of the minimum of all controlling elements of the state vector that control falling-sensitive switches.

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9. These limitations in context of the claim as defined in the specification and by claim interpretation are not taught and suggested by prior art of record.

10. The art of record, either individually or in combination, fails to teach, suggest, or render obvious invention having the corresponding function that is claimed. In view of the foregoing, the Instant Claims of the present application are found to be patentable over the prior art.

The claims are novel and non-obvious over the best prior-art of record. As recited in MPEP § 2131.02, "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsisimilis verbis* test, i.e., identity of terminology is not required. In *re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Therefore, the prior art of record does not anticipate, render obvious or read on the claims and the claims do not read on the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. Claims 8-10 and 15 allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Silver whose telephone number is (571) 272-8634. The examiner can normally be reached on Monday thru Friday, 10am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David Silver
Patent Examiner
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/ds/


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SUPERVISORY PATENT EXAMINER